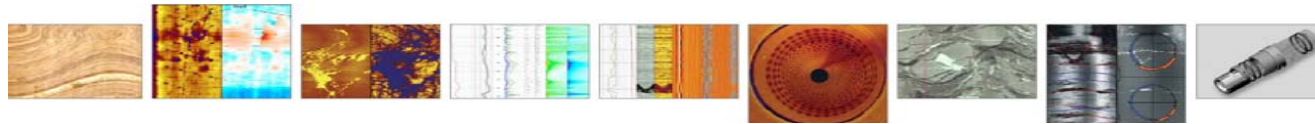


QL40 Stackable Logging Tools



Imaging Tools



QL40.ABI

Acoustic TelevIEWer

Sensor
Ultrasonic Transducer

Temperature - Pressure
0-70°C (32-158°F)
200 bar (2900 psi)


Borehole diameter
0.05 - 0.50 m (2" - 20")
depending on borehole conditions

Diameter - Length
40 mm (1.6") - 1.6 m (53")

Weight
6.7 kg (14 lbs)

Measurements/Features

- 360° orientated acoustic image (amplitude & travel time)
- Borehole azimuth and dip
- Tool internal temperature
- Relative bearing
- Magnetic field
- Gravity



QL40.OBI

Optical TelevIEWer

Sensor
CCD Camera

Temperature - Pressure
0-50°C (32-122°F)
200 bar (2900 psi)

Caliper
0.05-0.53 m (2"-21") depending on borehole conditions


Diameter - Length
40 mm (1.6") - 1.2 m (47")

Weight
4.9 kg (11 lbs)

Measurements/Features

- 360° RGB orientated optical image
- Borehole azimuth and dip
- Tool internal temperature
- Relative bearing
- Magnetic field
- Gravity

Sonic Tool



QL40.FWS

Full Waveform Sonic

Sensor
Ceramic piezoelectric with inside band frequency

Temperature - Pressure
0-70°C (32-158°F)
200 bar (2900 psi)

Diameter - Length
50 mm (2")
2.14 m (83")

Weight
18 kg (39.7 lbs)

Measurements/Features

- 1Tx-4Rx standard
- Other configuration on request
- Real time display and processing of full waveforms
- Cement bond logging (CBL)
- Porosity evaluation, Permeability
- Variation of rock strength
- Calculation of rock mechanical properties
- Identification and hydraulic characterization of fractures

Bottom In line

Mechanical Tool

QL40.CAL

3 Arm Caliper

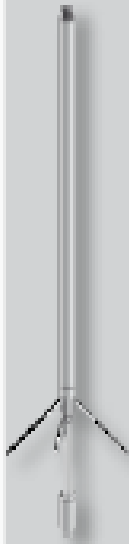
Temperature - Pressure
0-70°C (32-158°F)
200 bar (2900 psi)

Diameter - Length
40 mm (1.6") - 1.87 m (73")

Weight
8.7 kg

Measurements/Features

- Calibrated measurement of borehole diameter in inches, centimeters or millimeters
- Easy exchangeable short and long caliper arms and wear tips



Magnetic Tool

QL40.MGS

Magnetic Susceptibility

Sensor
Bartington –
1.35 kHz Focused Dual Coil system

Temperature - Pressure
0-70°C (32-158°F)
200 bar (2900 psi)

Diameter - Length
43 mm (1.7") - 1.4 m (56")

Weight
6.1 kg (13 lbs)

Measurements/Features

- Magnetic susceptibility in CGS unit



Deviation Tool

QL40.DEV

Borehole Deviation

Sensor
AP6544-3 axis magnetometer and accelerometer

Temperature - Pressure
0-70°C (32-158°F)
200 bar (2900 psi)

Diameter - Length
40 mm (1.6") - 0.7 m (28")

Weight
5.3 kg (12 lbs)

Measurements/Features

- Angular values of azimuth, tilt and relative bearing
- Calibrated values of each accelerometer and magnetometer components



Electrical Tools

QL40.Elog

Normal Resistivity
(8", 16", 32" and
64" - SP-SPR)

Temperature - Pressure
0-70°C (32-158°F)
200 bar (2900 psi)

Diameter - Length
43 mm (1.7")
1.9 m (75")

Weight
9 kg (19.8 lbs)

Measurements/Features
- 8", 16", 32" and 64"
Normal Resistivity In [Ohm-m]
- SP In [mV]
- SPR In [Ohm]

Bridles
QL40 IS 1
QL40 IS 2
QL40 IS 4



QL40.IP

Induced Polarization
and Normal Resistivity
(8", 16", 32" and 64")

Temperature - Pressure
0-70°C (32-158°F)
200 bar (2900 psi)

Diameter - Length
43 mm (1.7")
1.9 m (35")

Weight
9 kg (19.8 lbs)

Measurements/Features
- Chargeability Ma In [ms] on
16" and 64" electrodes
- 2 spacing full wave data
- 8", 16", 32" and 64" Normal
Resistivity In [Ohm-m]
- SP In [mV]
- SPR In [Ohm]

Bridles
QL40 IS 1
QL40 IS 2
QL40 IS 4



QL40.DLL3

Dual Laterolog

Temperature - Pressure
0-70°C (32-158°F)
200 bar (2900 psi)

Diameter - Length
43 mm (1.7")
2.83 m (111.4")

Weight
15 kg (33 lbs)

Measurements/Features
- Time Multiplex dual spacing
focused resistivity LL3-S &
LL3-D In [Ohm-m]
- Potential value on measuring
and guard electrodes In [V]
- Current value on measuring
and guard electrodes In [mA]

Bridles
QL40 IS 1
QL40 IS 2
QL40 IS 4



Fluid Properties Tools



QL40.SFM

Bi-directional spinner
Flowmeter

Temperature - Pressure
0-70°C (32-158°F)
200 bar (2900 psi)

Diameter - Length
40 mm (1.6") excluding cage
90 cm (35.4")

Weight
3.2 kg (7 lbs)

Measurements/Features
- 60 and 75 mm diameter varied
pitch impellers are available
- Spinner speed in CPS



QL40. FTC & FTC-b

Fluid Temperature and
Conductivity

Temperature - Pressure
0-70°C (32-158°F)
200 bar (2900 psi)

Diameter - Length
40 mm (1.6") bottom sub
50 mm (2") in line sub
1.31 m (52")

Weight
6.4 kg (14 lbs)

Measurements/Features
- Fluid temperature in °C
- Fluid conductivity in µS/cm
or mS/cm
- Compensated conductivity at
25°C in µS/cm or mS/cm



QL40. OCEAN 303

Water Quality Probe

Sensor
Idronaut ocean seven 303,
Pressure, Temp, Conductivity,
Oxygen, PH, Redox

Temperature - Pressure
0-70°C (32-158°F)
150 bar (2175 psi)

Diameter - Length
44 mm (1.7") - 1.4 m (55")

Weight
4.9 kg (10.8 lbs)

Measurements/Features
- Pressure : in dbar
- Temperature : in °C
- Conductivity
 Salt water : in mS/cm
 Fresh water : in µS/cm
- Oxygen : in ppm.
- pH :
- Redox : in mV

Bottom In line

Nuclear Tools

QL40.GR

Total Count
Natural Gamma

Sensor
NaI (TI) crystal (1 x 3")

Temperature - Pressure
0-70°C (32-158°F)
200 bar (2900 psi)

Diameter - Length
40 mm (1.6") - 0.9 m (36")

Weight
4.3 kg (9.5 lbs)

Measurements/Features
- Total gamma counts in CPS
and/or API unit

QL40.GR-CCL

Natural Gamma &
Casing Collar Locator

Sensor
GR: NaI (TI) crystal (1 x 3")
CCL: 32 x 280 mm coils &
magnets assembly

Temperature - Pressure
0-70°C (32-158°F)
200 bar (2900 psi)

Diameter - Length
40 mm (1.6") - 1.16 m (46")

Weight
5.9 kg (13 lbs)

Measurements/Features
- Total gamma counts in CPS
and/or API unit
- CCL in mV

QL40.SGR

Natural
Spectral Gamma

Sensor
NaI (TI) crystal (1 x 4")
BGO crystal (1 x 4")

Temperature - Pressure
0-70°C (32-158°F)
200 bar (2900 psi)

Diameter - Length
40 mm (1.6") - 0.93 m (36")

Weight
4.4 kg (9.6 lbs)

Measurements/Features
- 256 channels spectrum
- spectrum stabilized (software)
- Nuclides concentrations
- Window gamma counts
- Total gamma counts in CPS
and/or API unit

Nuclear Tool

QL40.DEN

Formation
Density Sonde

Sensor

CSI (Ti) crystals
SSD (30cm) and
LSD (35cm)

Temperature - Pressure

0-70°C (32-158°F)
200 bar (2900 psi)

Diameter - Length

50 mm (2") - 1.9 m (7.5")

Weight

20 kg (44 lbs)

Measurements/Features

- SSD : In CPS
- LSD : In CPS
- SSD density : In g/cc
- LSD density : In g/cc
- Compensated density : In g/cc
- Caliper : In mm or Inch
- PE option

QL40.NEU

Neutron - Thermal
Neutron

Temperature - Pressure

0-70°C (32-158°F)
200 bar (2900 psi)

Diameter - Length

40 mm (1.6") - 1.34 m (4.4")

Weight

5.5 kg (12 lbs)

Range

0 - 100,000 CPS

Measurements/Features

- Qualitative measurement of formation porosity in open and cased holes.
- Measures hydrogen content of formation.

Top & Bottom

QL40-MS1 QL40-GO4 QL40-GO1 QL40-GO7

Tool Top

Diameter

40 mm (1.6")

Length

± 0.06 m (2.3")

Weight

± 0.8 kg (1.8 lbs)

QL40-BOT

Tool Bottom Plug

Diameter

40 mm (1.6")

Length

0.19 m (7.5")

Weight

1.0 kg (2.2 lbs)